

Managing traffic noise - road surface

The type and condition of a road surface can have a significant effect on the noise levels experienced by residents adjacent to our state highways.

The type of road surface can affect the road noise levels by up to 10dB although due to constraints on the road surface typical effects are up to 6dB.

The surface used on our roads depends on the road usage or number of vehicles per day (vpd) using a route, the types of traffic and the consideration of other environmental and engineering factors.

Typical pavement layers on the Cambridge section

The diagram below shows the typical layers of a road.



Surfacing: This varies depending on the road usage and traffic volumes, but the types of surfacing we have on this project include chip seal, asphaltic concrete and the smooth surface of open graded porous asphalt (OGPA).

Basecourse: A high quality aggregate with cement mixed in.

Subbase: Larger stone size aggregate with cement mixed in.

SIL: (Subgrade improvement layer) brown rock or sand, cement and lime stabilised.

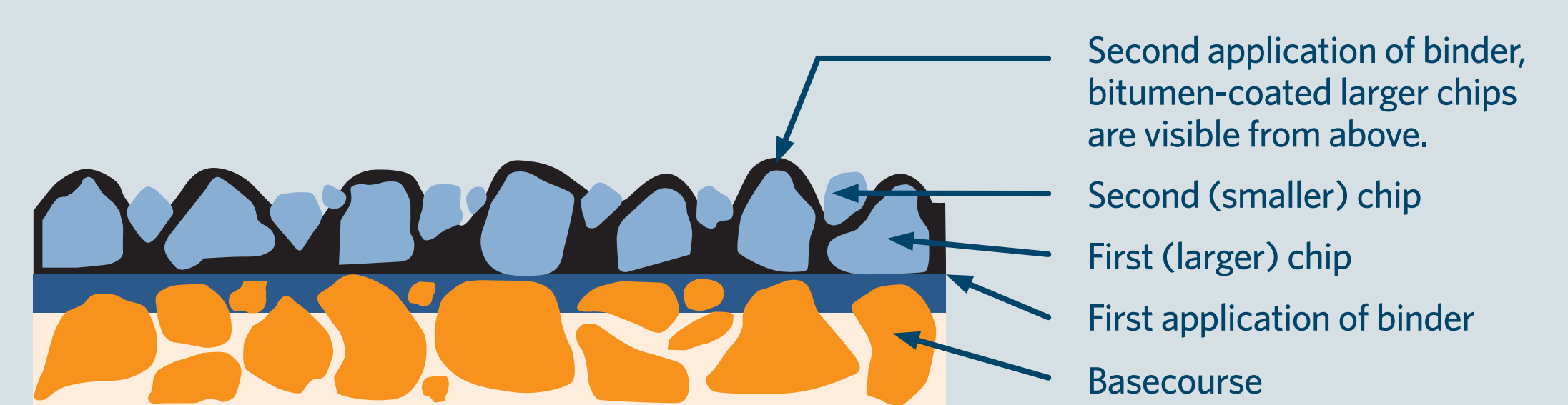
Subgrade: Insitu, natural ground.

Surfacing

The Cambridge section currently has a two coat chip seal which is needed for between 9 and 12 months while the pavement beds in.

Two-coat seal

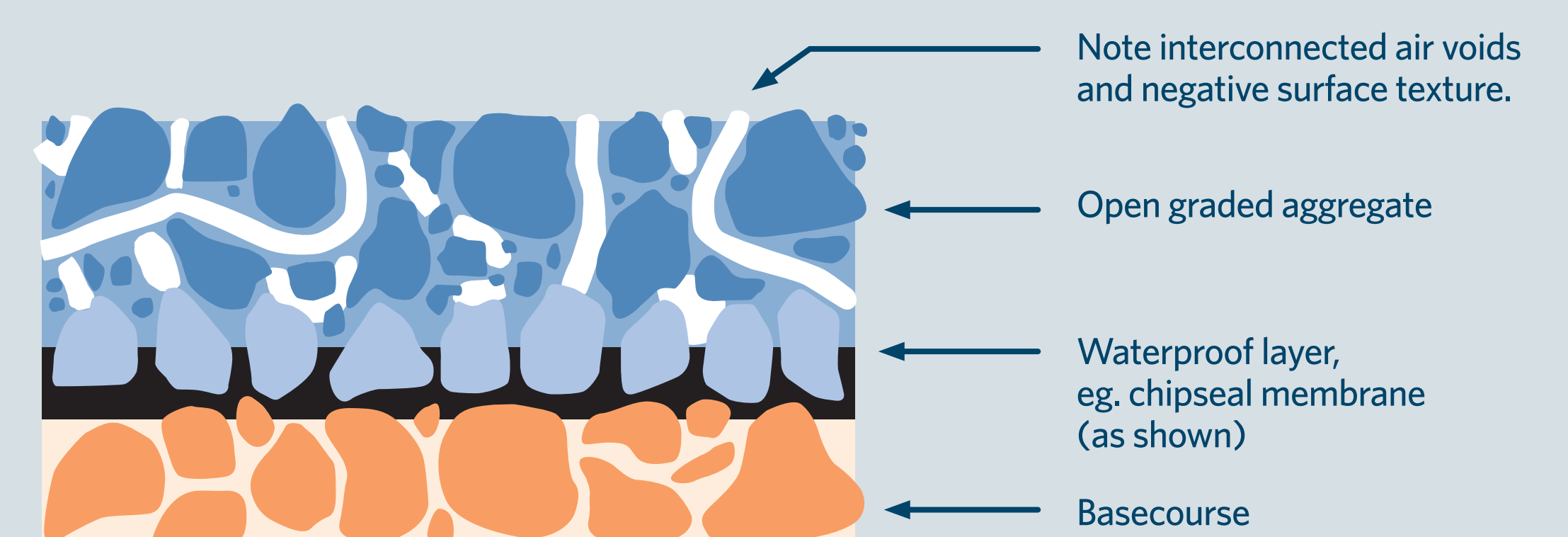
A two-coat chipseal has two applications of binder and two applications of chip, the second smaller in size to the first. The smaller chip of the second coat locks and supports the larger chip of the first coat.



A smooth surface of Open Graded Porous Asphalt (OGPA) will be laid on the Expressway in October. OGPA contains voids that provide paths for air to escape from beneath rolling vehicle tyres, which reduces the amount of sound generated. This surface is 4 to 6 dB quieter than chip seal.

Open graded porous asphalt (OGPA)

OGPA has fewer fine aggregates than other asphalt surfaces, and typically has between 15 and 25% voids.



Did you know?

While the road surface can have a significant effect on traffic noise this can also be impacted by:

- Surface features or how smooth the ride is for vehicles using it
- Joints where a road has been patched or resurfaced and joins with an existing road
- Whether the road is wet
- The speed traffic is travelling at
- Types of traffic